

Reprinted from

THE JOURNAL OF THE ELISHA MITCHELL SCIENTIFIC SOCIETY

Volume 89, Number 4 Winter, 1973

● TIRE REEFS: HABITAT IMPROVEMENT OR POLLUTION. *Richard B. Stone, Linda C. Coston, Donald E. Hoss, and Ford A. Cross.* Field studies have demonstrated that scrap tire reefs effectively add to the favorable habitat of an area and allow for increases in the standing crop of fishes and invertebrates. Questions have arisen, however, as to the possibility of potentially toxic materials leaching from the tires into the water. Because of this possibility, we initiated laboratory studies at Beaufort, N.C. in July, 1972 specifically designed to measure changes in levels of chlorinated hydrocarbons and heavy metals in fish held under simulated artificial reef conditions. We measured levels of polychlorinated biphenyls (PCB's), DDE, DDD, DDT, Dieldren, Zn, Mn, Fe, and Cu, as examples of contaminants which might be introduced into the environment along with the tires. We used two species of fish that are known to inhabit artificial tire reefs: pinfish (*Lagodon rhomboides*) and black sea bass (*Centropristis striata*). Fish were held in two 2,000-liter flowing sea water fiberglass tanks under identical conditions with the exception that 6 scrap tires were added to one tank to simulate artificial reef conditions. We found no change with time in the levels of PCB's, insecticides, and trace metals between control fish and experimental fish exposed to the artificial tire "reef." However, we were able to maintain sea bass in the tank with tires for only 29 days while pinfish in the same tank and both species in the control tank survived until the experiment was terminated at 101 days. The difference in survival between the two groups may have resulted either from handling procedures, dietary deficiencies, or changes in behavior caused by competition for the limited habitat provided by the tires. We plan to repeat the study using just sea bass to clarify this point.